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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,163	04/19/2004	Trudy L. Benjamin	200208780-1	2669

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EXAMINER	
MARTIN, LAURA E	
ART UNIT	**PAPER NUMBER**
2853	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/827,163	BENJAMIN ET AL.	
	Examiner	Art Unit	
	Laura E. Martin	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-96* is/are pending in the application.

4a) Of the above claim(s) *1-22,30-32,35,36,38,39 and 46-96* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-29,33,34,37,40 and 43-45* is/are rejected.

7)☒ Claim(s) *41 and 42* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

Acknowledgement is made of the information disclosure statement (IDS) submitted on 7/13/2004, 11/28/2005, and 3/17/2006. The submission is in compliance with the provisions of 37 CFR 1.97.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Cleland et al. (US 6491377 B1).

Cleland et al. disclose the following claim limitations:

As per claim 23: a fluid ejection device comprising: a plurality of firing cells (figure 11A, figure 10, element 1001); a fire line adapted to receive an energy signal having energy pulses (figure 11A, element PS 1-8); and an address generator (figure 11A, element 18) configured to provide a series of address signals adapted to enable firing cells of the plurality of firing cells in a series of address timeslots, wherein the energy signal provides at least one energy pulse during each of the address timeslots in the series of address timeslots to energize selected enabled firing cells (column 17, lines 21-35).

As per claim 29: the address generator provides seven address signals as a set of address signals during each of the address timeslots in the series of address timeslots (figure 11A, elements PS 1-8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 24-28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cleland et al. (US 6491377 B1) in view of Takahashi (US 5621440 A).

Cleland et al. disclose the following claim limitations:

The fluid ejection device of claim 23.

Cleland et al. do not disclose the following claim limitations:

As per claim 24: the address generator is configured to provide the series of address signals in a first sequence of the series of address signals and a second sequence of the series of address signals (claim 23).

As per claim 25: first sequence of the series of address signals is the reverse of the second sequence of the series of address signals (claim 23).

As per claim 26: the address generator comprises: memory elements configured to provide output signals; and logic configured to receive the output signals and provide the series of address signals in response to the output signals, wherein the logic is

configured to provide the series of address signals in the first sequence in response to the memory elements providing the series in a first output sequence and the logic is configured to provide the series of address signals in the second sequence in response to the memory elements providing the output signals in a second output sequence (column 5, lines 38-46).

As per claim 27: the address generator comprises: first memory elements configured to provide first output signals (figure 25, elements 313 and 314); second memory elements configured to provide second output signals; first logic configured to receive the first output signals and provide the series of address signals in the first sequence in response to the first output signals; and second logic configured to receive the second output signals and provide the series of address signals in the second sequence in response to the second output signals (column 5, lines 38-46).

As per claim 28: the address generator comprises: memory elements configured to provide output signals; first logic configured to receive the output signals and provide the series of address signals in the first sequence in response to the output signals; and second logic configured to receive the output signals and provide the series of address signals in the second sequence in response to the output signals (column 5, lines 38-46 and figure 25, elements 313 and 314).

As per claim 33: the address generator comprises: a shift register configured to provide output signals during each of the address timeslots in the series of address timeslots (figure 13, element 103); and logic configured to receive the output signals during each address timeslot in the series of address timeslots and provide address

signals in the series of address signals during each of the address timeslots in the series of address timeslots in response to the received output signals (column 5, lines 38-46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fluid ejection device taught by Cleland et al. with the disclosure of Takahashi in order to obtain sharp and high quality images and to improve upon recording speed.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cleland et al. (US 6491377 B1) and Takahashi (US 5621440 A), and further in view of Gibson et al. (US 5757394 A).

Cleland et al. as modified disclose the following claim limitations:

The fluid ejection device of claim 33.

Cleland et al. as modified do not disclose the following claim limitations:

The logic is configured to pull down low at least one of the address signal provided during each of the address timeslots in the series of address timeslots.

Gibson et al. disclose the following claim limitations:

The logic is configured to pull down low at least one of the address signal provided during each of the address timeslots in the series of address timeslots (column 3, line 33 - column 4, line 32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fluid ejection device taught by Cleland et al. as modified with the disclosure of Gibson et al. in order to more efficiently read printer electronics.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cleland et al. (US 6491377 B1) and Takahashi (US 5621440 A), and further in view of Nakajima et al. (US 6476839 B1).

Cleland et al. as modified disclose the following claim limitations:

The fluid ejection device of claim 33.

Cleland et al. as modified do not disclose the following claim limitations:

Signal lines configured to receive a series of pulses wherein the logic is configured to receive three pulses in the series of pulses.

Nakajima et al. disclose the following claim limitations:

Signal lines configured to receive a series of pulses wherein the logic is configured to receive three pulses in the series of pulses (claim 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fluid ejection device taught by Cleland et al. as modified with the disclosure of Nakajima et al. in order to improve print quality.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cleland et al. (US 6491377 B1) and Takahashi (US 5621440 A), and further in view of Hayasaki (US 6036297 A).

Cleland et al. as modified disclose the following claim limitations:

The fluid ejection device of claim 33.

Cleland et al. as modified do not disclose the following claim limitations:

Signal lines configured to receive a series of pulses, wherein the shift register comprises shift register cells configured to receive an input signal and pulses in the series of pulses and to store the input signal in response to the received pulses.

Hayasaki discloses the following claim limitations:

Signal lines configured to receive a series of pulses, wherein the shift register comprises shift register cells configured to receive an input signal and pulses in the series of pulses and to store the input signal in response to the received pulses (column 9, lines 13-37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fluid ejection device taught by Cleland et al. as modified with the disclosure of Hayasaki in order to improve print quality.

Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cleland et al. (US 6491377 B1), Takahashi (US 5621440 A), and Hayasaki (US 6036297 A), and further in view of Arakawa et al. (US 6270180 B1).

Cleland et al. as modified disclose the following claim limitations:

The fluid ejection device of claim 33.

Cleland et al. as modified do not disclose the following claim limitations:

As per claim 43: each of the shift register cells comprises a first stage and a second stage and the first stage is configured to receive direction signals and the input signal.

As per claim 44: each of the shift register cells comprises a first stage and a second stage and the first stage of one of the shift register cells is configured to receive a control signal as the input signal.

As per claim 45: each of the shift register cells comprises a first stage and a second stage and the first stage of two of the shift register cells is configured to receive a control signal as the input signal.

Arakawa et al. disclose the following claim limitations:

As per claim 43: each of the shift register cells comprises a first stage and a second stage and the first stage is configured to receive direction signals and the input signal (figure 2, Dat0-Dat2 and CLKIN).

As per claim 44: each of the shift register cells comprises a first stage and a second stage and the first stage of one of the shift register cells is configured to receive a control signal as the input signal (figure 2, Dat0-Dat2 and CLKIN).

As per claim 45: each of the shift register cells comprises a first stage and a second stage and the first stage of two of the shift register cells is configured to receive a control signal as the input signal (figure 2, Dat0-Dat2 and CLKIN).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Cleland et al. as modified with the disclosure of Arakawa et al. in order to improve the quality of the printer.

Allowable Subject Matter

Claims 41 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin

4/26/07

MANISH S. SHAH
PRIMARY EXAMINER